NEW CLAIMS

1. **Equipment** comprising:
   - an analytical unit (9) supporting a source (7) of a radiation beam, having a collimation axis (10); and a radiation beam detector (8) having a reception axis (11), said collimation (11) and reception (10) axes converging in a centre of the diffractometer (12), which is fixed with respect to said analytical unit (9);
   - means (16, 31, 32, 33) for moving said analytical unit in the space;
   - means (20, 20') for rotating said source and detector around said centre of the diffractometer, **so that said collimation axis (11) and said reception axis (10) are kept in an equatorial plane, fixed with respect to said first analytical unit (9);**
   - **a support and movement structure (14) supporting said analytical unit (9)**
   - **means (27) for moving said analytical unit with respect to said support and movement structure (14), so that the analytical unit (9) can rotate around an equatorial axis (15) contained in said equatorial plane and passing through said centre of the diffractometer (12);**

   characterised in that said means (27) for moving said analytical unit with respect to said support and movement structure (14) permit the rotation of the equatorial plane around said equatorial axis (15), without that the latter changes its position in the space.
2. **Equipment according to claim 1, wherein said means for moving said analytical unit in the space (16, 30) are capable to rotate said analytical unit around an axis (4) perpendicular to said equatorial axis.**
3. **Equipment according to claim 1 or 2, wherein the source (7) is a source of electromagnetic or acoustic radiation or radiation consisting of particle beams and the detector (8) is a detector of electromagnetic or acoustic radiation or radiation consisting of particle beams.**
4. Diffractometer according to **any of the preceding claims**, wherein the source (7) is a x-ray source and the detector (8) is a x-ray detector.
5. Diffractometer according to **any of the preceding claims**, wherein said means (16, 31, 32, 33) for moving said analytical unit (9) in the space, are suitable to permit to change the position of said centre of the diffractometer (12) **by rotation or translation of said analytical unit.**

6. Diffractometer according to **any of the preceding claims**, wherein said equatorial axis (15) is perpendicular to a symmetry plane of said analytical unit (9).

7. Diffractometer according to **any of the preceding claims**, wherein said **around said equatorial axis (15)**, is possible along an arc of at least 10°, preferably at least 20°.

8. Diffractometer according to claim 3, wherein said detector (8) is a proportional ionisation counter.

9. **Diffractometer according to any of the preceding claims, comprising a pointing device placed on said analytical unit (9), for positioning said analytical unit with respect to an element to be analysed.**

10. **Diffractometer according to claim 8, wherein said pointing device comprises two lasers and a telecamera.**

11. **Diffractometer according to any preceding claim, wherein said analytical unit has the form of a circular arc.**

12. Diffractometry method comprising positioning a diffractometer comprising:

- an analytical unit supporting a source of a radiation beam, having a collimation axis and a radiation beam detector having a reception axis, said collimation and reception axes converging in a centre of the diffractometer, which is fixed with respect to said analytical unit ;
- means for moving said analytical unit in the space;
- means for rotating said source and detector around said centre of the diffractometer so **that said collimation axis (11) and said reception axis (10) are kept in an equatorial plane, fixed with respect to said first analytical unit (9);**
- **a support and movement structure (14) supporting said analytical unit (9)** ,
- **means (27) for moving said analytical unit with respect to said support and movement structure (14), so that the analytical unit (9) can rotate around an equatorial axis (15) contained in said equatorial plane and passing through said centre of the diffractometer (12);**

said means (27) for moving said analytical unit with respect to said support and movement structure (14) permitting the rotation of the equatorial plane around said equatorial axis (15), without that the latter changes its position in the space;

characterised in that it comprises positioning said centre of the diffractometer on a point of the surface of an element to be analysed.

13. Method according to claim 12, wherein said analytical unit has a symmetry plane and said plane is placed perpendicularly to the surface of the element to be analysed at the point coincident with said centre of the diffractometer.

14. X-ray diffractometry method according to claim 12 or 13.

15. Method according to any claim from 12 to 14, wherein said element to be analysed is not mechanically linked to the diffractometer.